CLAIMS

1. Therapeutic aerosol device with

a) a nebuliser device (1)

aa. an aerosol generator (2) to which a gaseous medium, in particular air and preferably compressed air for the generation of a main aerosol flow may be supplied from a supply device, preferably a compressed air supply device,
and

bb. A pressure connection device (25) to supply pressure fluctuations which are superimposed on the aerosol main flow,

b) a nosepiece (10) to supply the aerosol into one of the two alae of the nose of a user connected to the nebuliser device (1), and

c) a flow resistance device (11) at the other of the two alae of the user's nose.

2. Therapeutic aerosol device according to claim 1, characterised in that the supply device is a compressed air supply device and the aerosol generator is a nebuliser nozzle (2) with a compressed air channel (5) opening into a nozzle opening (6), and with at least one suction channel (7) through which a liquid to be nebulised is drawn in.

3. Therapeutic aerosol device according to either claim 1 or 2, characterised in that the nosepiece (10) is embodied at one end (10a) for attachment to a connecting piece (8) in the nebuliser device (1) and at the other end (10b) for introduction into one nostril and the tight sealing of one of a user's nostrils.

4. Therapeutic aerosol device according to claim 3, characterised in that the end (10b) of the nosepiece (10) embodied for introduction into one nostril is embodied in the form of a truncated cone, preferably with an aperture angle α in a range of from 10° to 40°.

5. Therapeutic aerosol device according to claim 4, characterised in that the truncated cone shaped end (10b) of the nosepiece (10) has a longitudinal axis, which is inclined relative to the longitudinal axis of the connecting piece (8) of the nebuliser device (1).

6. Therapeutic aerosol device according to claim 5, characterised in that the angle between the longitudinal axes of the truncated cone shaped end (10b) and of the connecting piece (8) is in the range of from 30° to 75°.

7. Therapeutic aerosol device according to any one of claims 3 to 6, characterised in that the end embodied for introduction into one nostril (10b) of the nosepiece (10) is embodied with a balloon device (32) that may be inflated by the supply of compressed air in order to ensure a reliable and tight fit of the nosepiece in one of a patient's nostrils.

8. Therapeutic aerosol device according to any one of claims 1 to 7, characterised in that the flow resistance

device (11) is embodied for introduction into the other of the use's nostrils.

9. Therapeutic aerosol device according to any one of the preceding claims, characterised in that the flow resistance device (11) comprises an opening (11a) smaller than the user's nostril.

10. Therapeutic aerosol device according to any one of the preceding claims, characterised in that the flow resistance device (11) comprises a filter device (12).

11. Therapeutic aerosol device according to any one of the preceding claims, characterised in that the flow resistance device (11) is connected to the nosepiece (10) by a connecting element (13).

12. Therapeutic aerosol device according to claim 11, characterised in that the flow resistance device (11) is embodied in one piece with the nosepiece (10).

13. Therapeutic aerosol device according to any one of the preceding claims, characterised in that the flow resistance device (11) is a stopper in particular a stopper with a hollow space.

14. Therapeutic aerosol device according to claim 13, characterised in that the stopper (11) is embodied in the form of a truncated cone, preferably with an aperture angle α in a range of from 10° to 40°.

15. Therapeutic aerosol device according to claim 13, characterised in that the stopper is embodied in a bell

shape with a first area (A-A) with a large diameter and a second diameter (B-B) with a small diameter.

16. Therapeutic aerosol device according to any one of the preceding claims, characterised in that the nebuliser device (1) comprises an air inlet flue (9) and the pressure connection device (25) is intended to supply pressure fluctuations at the air inlet flue (9).

17. Therapeutic aerosol device according to claim 16, characterised in that the pressure connection device (25) comprises a meander-shaped guide (27) for the compressed air.

18. Therapeutic aerosol device according to any one of the preceding claims, characterised in that compressed air is supplied through the pressure connection device (25).

19. Therapeutic aerosol device according to any one of the preceding claims, characterised in that the frequency of the pressure fluctuations lies within the range from 10 to 100 Hz, preferably in the range from 15 to 55 Hz.

20. Therapeutic aerosol device according to any one of the preceding claims, characterised in that the pressure fluctuations are generated by means of a membrane compressor comprising a membrane (21) that seals a pressure chamber (20) in a pressure-tight way and is moved to and fro by a piston rod.

21. Therapeutic aerosol device according to claim 20, characterised in that the pressure chamber (21) comprises a connecting piece (24) for the connection of

a hose line (26) which is connected to the pressure connection device (25) in the nebuliser device.

22. Therapeutic aerosol device according to any one of the preceding claims, characterised in that a sensor device (34, 37, 41) to determine the main aerosol flow or the pressure fluctuations is provided on the flow resistance device (11).

23. Therapeutic aerosol device according to claim 22, characterised in that an evaluation device (35) and a display device (36) are connected to the sensor device (34) to indicate to the patient whether the main aerosol flow or the pressure fluctuations are sufficiently within the area of the flow resistance device (11).

24. Therapeutic aerosol device according to claims 22 or 23, characterised in that the sensor device comprises a movable display element (41) which is arranged in a display section (38) of the sensor device (37) and is moved by the main aerosol flow or the pressure fluctuations.

25. Therapeutic aerosol device according to any one of claims 1 to 23 for the application of one or more of the following substances:

substances with an anti-inflammatory action, for example: betamethasone, beclomethasone, budesonide, ciclesonide, dexamethasone, desoxymethasone, fluoconolone acetonide, flucinonide, flunisolide, fluticasone, icomethasone, rofleponide, triamcinolone acetonide, fluocortin butyl, hydrocortisone aceponate, hydrocortisone buteprate buteprate, hydroxycortisone-17-

butyrate, prednicarbate, 6-methylprednisolone aceponate, mometasone furoate, elastane-, prostaglandin-, leukotriene-, bradykinin- antagonists, non-steroidal anti-inflammatory drugs (NSAIDs) and/or

anti-infective agents, for example: antibiotics with or without beta-lactamase inhibitors, for example clavunalic acid, sulbactam, tazobactam, etc. from the class of

penicillins, for example: benzylpenicillins (penicillin-G-sodium, clemizone penicillin, benzathine penicillin G); phenoxypenicillins (penicillin V, propicillin); aminobenzylpenicillins (ampicillin, amoxycillin, bacampicillin), acylaminopenicillins (azlocillin, mezlocillin, piperacillin, apalcillin), carboxypenicillins (carbenicillin, ticarcillin, temocillin), isoxazolyl penicillins (oxacillin, cloxacillin, dicloxacillin, flucloxacillin), amiidine penicillin (mecillinam),

cefalosporins, for example: cefazolins (cefazolin, cefazedone); cefuroximes (cerufoxim, cefamdole, cefotiam); cefoxitins (cefoxitin, cefotetan, latamoxef, flomoxef); cefotaximes (cefotaxime, ceftriaxone, ceftizoxime, cefmenoxime); ceftazidimes (ceftadzidime, cefpirome, cefepime); cefalexins (cefalexin, cefaclor, cefadroxil, cefradine, loracarbef, cefprozil); cefiximes (cefixime, cefpodoxim proxetile, cefuroxime axetil, cefetamet pivoxil, cefotiam hexetil),

cabapenems and combinations, for example imipenem ± cilastin, meropenem, biapenem monobactams (aztreonam), the above antibiotics and/or

aminoglycosides, for example: gentamicin, amikacin, isepamicin, arbekacin, tobramycin, netilmicin, spectinomycin, neomycin, paromoycin, kanamycin, and/or

macrolides, for example: erythromycin, clarythromycin, roxithromycin, azithromycin, dithromycin, josamycin, spiramycin, and/or

gyrase inhibitors, for example: ciprofloxacin, gatifloxacin, norfloxacin, ofloxacin, levofloxacin, perfloxacin, lomefloxacin, fleroxacin, clinafloxacin, sitafloxacin, gemifloxacin, balofloxacin, trovafloxacin, moxifloxacin, and/or

antibiotics of other classes, for example: tetracyclines (doxycycline, minocycline), glycopeptides (vancomycin, teicoplanin, peptide 4), polymyxins (polymyxin B, colistin), tithromycin, lincomycin, clindamycin, oxazolindiones (linzezolids), chloramphenicol, fosfomycin, rifampicin, isoniazid, cycloserine, terizidone, ansamycin pentamidine, and/or

sulfonamides and combinations, for example: sulfadiazine, sulfamethoxazole, sulfalene, co-trimoxazole, co-trimetrol, co-trimoxazine, co-tetraxazine, and/or

nitroimidazoles and nitrofurans, for example, metronidazole, tinidazole, ornidazole, nitrofurantoin, nitrofuranzone, and/or

antimycotics, for example: azole derivatives (clotrimazole, oxiconazole, miconazole, ketoconazole,

itraconazole, fluconazole); polyene antibiotics (amphotericin B, natamycin, nystatin, flucocytosine, and/or

virustatics, for example: podophyllotoxin, vidarabine, tromantadine, zidovudine, proteinase inhibitors,

alone or also in combination with:

extracts or ingredients of plants, for example: camomile, hamamelis, echiancea and calendula extract, essential oils (eucalyptus oil, camomile oil, pine needle oil, spruce needle oil, peppermint oil, thyme oil, rosemary oil), bisabol oil, cineole, myrtol, thymol, menthol, camphor and/or

wound treatment agents and anti-oxidants, for example: dexpanthenol, iodine povidone, tannin, bismuth salts, allantoin, zinc compounds, vitamins and trace elements, cod liver oil extract, tocopherols, glutathione, ascorbic acid, and/or

antiseptics: acridine derivatives, benzoates, rivanol, chlorhexetidine, quarternary ammonium compounds, cetrimides, biphenylol, clorofene, octenidine, and/or

mucolytics, for example: acetylcysteine, carbocysteine, ambroxol, bromhexine, tyloxapol, recombined surfactant proteins, DNase and/or

substances to reduce swelling of the mucous membrane, for example: phenylephrine, naphazoline, tramazoline, tetryzoline, oxymetazoline, fenoxazoline, xylometazoline, epinephrine, isoprenaline,

hexoprenaline, ephedrine, anti-allergic agents (DSCG), heparin, heparinoids, and/or

local anaesthetics, for example: tetracaine, procaine, lidocaine.

26. Therapeutic aerosol device according to claim 25, characterised in that application by means of a therapeutic aerosol device in accordance with any one of claims 1 to 23 takes place in such a way that aerosol droplets with a diameter of less than 10 µm and preferably approximately 2 to 5 µm are generated.

27. Therapeutic aerosol device according to either claim 25 and 26, characterised in that at least one of the substances is used as a liposome, suspension or emulsion in the micrometer range preferably in the nanometer range with a geometric diameter of less than approximately 1 µm.

28. Therapeutic aerosol device according to any one of claims 1 - 27, integrated into a handheld device.